RIVELA – Database for the research on Venice and the Lagoon

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The Consortium for coordination of research concerning the Venice Lagoon System (CORILA) is an association of the University of Venice, the University of Padua, the Venice University Institute of Architecture and the National Research Council of Italy. Established in 1999, it manages scientific research on Venice, funded by the Italian Special Law for Venice via the Ministry for Teaching, Instruction and Research. The current research programme (2000-2004), of the value of around EUR 10 million, involves an international network of 70 research institutions in different disciplines. The integrated management of information across the disciplines constitutes un important goal of CORILA.

RIVELA is a relational and flexible database for storage and management of information with facilities making readily available the research results of CORILA to the scientific community, decision makers and the general public. RIVELA allows the permanent and secure archival of results from research activities and the wide dissemination of the data, subject to appropriate user authorisation. All interactions between users and RIVELA occur via the Web.

The RIVELA database consists of two principal components: a *static* part, relative to the auxiliary support data, and a *dynamic* part, relative to surveys effected in the field activities.

The static part contains the following information:

research groups and performed activities (research projects, work packages, activity);

geographical location of the data (zones, environmental units, localities);

data type (matrixes, types of sample, parameters);

data acquisition methodologies (method, apparatus).

The dynamic part contains four connected fundamental entities: Measurements, Samples, Stations and Sampling Activities. A measure is the value of a parameter deriving from a certain sample, which has a precise spatial (station) and temporal location. The samples are, in turn, classified according to type (sample types), depending on the environmental matrix.

The classification of samples and parameters is the result of long and complex interaction with the Research Groups to collect and define, in a singular way, the different modes in use within groups in individual research.

All information in the static part can be easily searched and visualized. Furthermore, via specially predisposed pages, users can suggest integrations.

Currently, three principal applications, all available via the web, are anticipated: insertion of data from field activities, search and extractions of data with guided interrogations, data visualization within a GIS system.

Data input is via connection to the appropriate webpage, containing a series of fields to manually fill and buttons to send one or more files, CSV format, prepared on the user's computer.

In addition to the measurements themselves, information relative to the methodologies used must also be inserted, and auxiliary data like bibliographies, images, etc. can be inserted too.

As RIVELA is a relational database, users have at their disposal all the usual modes of access to data: SQL, "individual productivity" tools such as Excel and Access which are useful to extract sets of data in tabular format and to carry out operations using one's own computer. Moreover, two additional

access and extraction modes have been provided: a guided interactive search and interrogation through GIS.

In formulating an interactive interrogation, the user is guided in a way that allows specification of information requirements through a selection of the parameters of interest, spatial location, temporal location.

The interrogation result is a user-configurable chart, immediately visualized on the webpage, but which can also be downloaded in CVS format for further elaborations, or visualized on geo-referenced maps of the Lagoon.

The availability of a GIS system also allows visualisation via the web of the results of modelling simulations, statistical data analysis, and thematic representations of these.